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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.         | CONFIRMATION NO. |
|---|-------------|----------------------|-----------------------------|------------------|
| 10/789,503  | 02/27/2004  | Jeffrey S. Lille     | SJO920000168US3,<br>38.11D2 | 9115             |
| 24033   | 7590        | 12/08/2005           | EXAMINER                    |                  |
| KONRAD RAYNES & VICTOR, LLP<br>315 S. BEVERLY DRIVE<br># 210<br>BEVERLY HILLS, CA 90212 |             |                      | KIM, PAUL D                 |                  |
|   |             |                      | ART UNIT                    | PAPER NUMBER     |
|   |             |                      | 3729                        |                  |

DATE MAILED: 12/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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|                              |                                      |  |  |
|------------------------------|--------------------------------------|--|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/789,503 | <b>Applicant(s)</b><br>LILLE, JEFFREY S. |  |
|                              | <b>Examiner</b><br>Paul D. Kim       | <b>Art Unit</b><br>3729                  |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-17 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9, 11 and 12 is/are rejected.
- 7) ☒ Claim(s) 10 and 13-17 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

### **DETAILED ACTION**

1. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

#### ***Specification***

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: --A METHOD FOR FORMING A HEAD SUSPENSION ASSEMBLY--.

3. The disclosure is objected to because of the following informalities: There are so figures descriptions for Figs 11 (a) and 11 (b) and Figs. 12 (a) and 12(b) in "Brief Description of the Drawings" on page 5.

Appropriate correction is required.

#### ***Claim Objections***

4. Claims 1-10 are objected to because of the following informalities:

Re. Claim 1: The phrase "the image" as recited in line 5 appears to be --a--.

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Re. Claim 8: The phrase "the depth" as recited inline 2 appears to be --a depth--.

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 1-10 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Re. Claim 1: The phrase "forming a sacrificial layer on a portion of a substrate" as recited in line 2 and "removing the sacrificial layer to form a cavity extending a distance into the substrate" as recited in line 7 was not described in the specification in such a way as to enable one skilled in the art to make and/or use the invention.

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 1-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Re. Claim 1: The phrase “forming a sacrificial layer on a portion of a substrate” as recited in line 2 and “removing the sacrificial layer to form a cavity extending a distance into the substrate” as recited in line 7 renders the claim vague and indefinite. It is unclear as to how the cavity is formed by removing the sacrificial layer, which is formed on the substrate.

Re. Claim 8: The Phrase “the suspension arm” as recited in line 2 lacks antecedent basis.

### ***Claim Rejections - 35 USC § 102***

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 1-6, 8 and 10 are, as best understood in view of the rejections under 112 first (as per claims 1, 4 and 8) and second paragraphs, rejected under 35 U.S.C. 102(b) as being anticipated by Yagi (US PAT. 6,013,573).

Yagi teaches a process of forming a microstructure comprising steps of: forming a sacrificial layer (511) on a portion of a substrate (512); forming a transfer film (513) across the substrate; patterning a photoresist layer (514) on top of the transfer film as shown in Fig. 1A; transferring the image of the patterned photoresist layer through the transfer film as shown in Fig. 1B; removing the patterned photoresist layer as shown in

Fig. 1C; and removing the sacrificial layer to form a cavity (D) extending a distance into the substrate as shown in Fig. 1D (see also col. 1, lines 44-60).

Re. Claims 2 and 6: The transfer film is made of poly-silicon material.

Re. Claim 3: Yagi also teaches that the poly-silicon material is patterned by using reactive ion etching (see col. 11, lines 50-55).

Re. Claim 5: The sacrificial layer is made of silicon dioxide material. The cavity is formed by removing the silicon dioxide material.

Re. Claim 10: Yagi also teaches that a slider (515) is formed on the transfer film after removing the sacrificial layer as shown in Fig. 1E.

### ***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 7, 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yagi as in view of Cleaves et al. (US PAT. 5,830,804).

Yagi teaches all of the limitations as set forth above including the substrate made of silicon and the transfer film made of poly-silicon material. However, Yagi fails to teach the transfer film made of polysilsesquioxone. Cleaves et al. teach a process of making an electrical device including a sensitive dielectric material (low K material) such as polyimide or silsesquioxone material in order to reduce the capacitive coupling between

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adjacent conductive lines which allows for increasing packing density (col. 4, line 63 to col. 5, line 25). Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the transfer film made of polysilicon material of Yagi by a sensitive dielectric material (low K material) such as polyimide or silsesquioxone material as taught by Cleeves et al. in order to reduce the capacitive coupling between adjacent conductive lines which allows for increasing packing density.

As per claim 12 Cleeves et al. also teach that the polysilsesquioxone layer is cured in order to harden and stabilize the polysilsesquioxone layer.

13. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yagi as in view of JP-5357978 A.

Yagi teaches all of the limitations as set forth above, but fails to teach an adhesive layer in between the substrate and the transfer film. JP-5357978 A teaches a process of forming an adhesive layer on between a silicon substrate and a support body in order to improve bonding between the substrate and the transfer film. Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify facilitating process of forming the transfer film formed on the substrate of Yagi by an adhesive layer as taught by JP-5357978 A in order to improve bonding between the substrate and the transfer film.

***Allowable Subject Matter***

14. Claims 13-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

15. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record fails to disclose the claimed invention such as a process of positioning a slider (as per claim 17), which is a part of the head suspension assembly capable of reading and writing the data to the disk, on the transfer film made of resin after the removing the sacrificial layer. Even though Yagi teaches most of the limitations as set forth above, Yagi fails to teach a slider, which is a part of the head suspension assembly capable of reading and writing the data to the disk, on the transfer film made of resin after the removing the sacrificial layer. Therefore, it would not be obvious to modify Yagi by adding any head suspension assemblies such as a slider to fabricate the head suspension assembly, since doing so would destroy the structure of Yagi. In addition, Yagi also fails to teach to form a trench in the substrate to form a sacrificial layer in the trench and the polysilsesquioxone layer is formed over the sacrificial layer (as per claim 13). So, it is not obvious taken alone or in combination of other references fairly to suggest the claimed invention.

***Conclusion***

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul D. Kim whose telephone number is 571-272-4565.



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The examiner can normally be reached on Monday-Friday between 7:00 AM to 3:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 571-272-4690. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Paul D Kim  
Examiner  
Art Unit 3729